



ECP20-2G

Peltier Gas Cooler Series ECP®

Version ECP20-2 for 1 x 500 NI/h gas flow rate

Special Features

- Peltier gas cooler with 2 Jet-Stream heat exchangers (available in various standard materials)
- Gas flow rate max. 500 NI/h
- Gas outlet dew point adjustable from +2 to +15 °C [35.6 to 59 °F]
- Dew point stability < ±0.1 °C [< ±0.18 °F]
- Total cooling capacity of 80 kJ/h at +25 °C [+77 °F] ambient temperature
- Ambient temperature up to +45 °C [+113 °F]
- Status alarm standard
- Compact design
- Low weight
- Power: 115/230 V switchable

Application

The M&C gas cooler ECP20-2 is used in analytical technology to lower the dew point of humid gases in order to exclude condensation in the analyzer. By setting an extremely stable gas outlet dew point, water vapor cross-sensitivity and volumetric errors are avoided.

Description

The electronically controlled Peltier gas coolers and the special design of the Jet-Stream heat exchangers ensure optimum dew point reduction to a low, stable value and reliable condensate separation.

External condensate pre-separation is not required under normal conditions.

The condensate is discharged externally by using peristaltic pumps, condensate float traps or collecting vessels. The practical design allows the installation of heat exchangers made of a wide variety of materials, depending on the application. LEDs signal the operating status as well as under- and overtemperature.

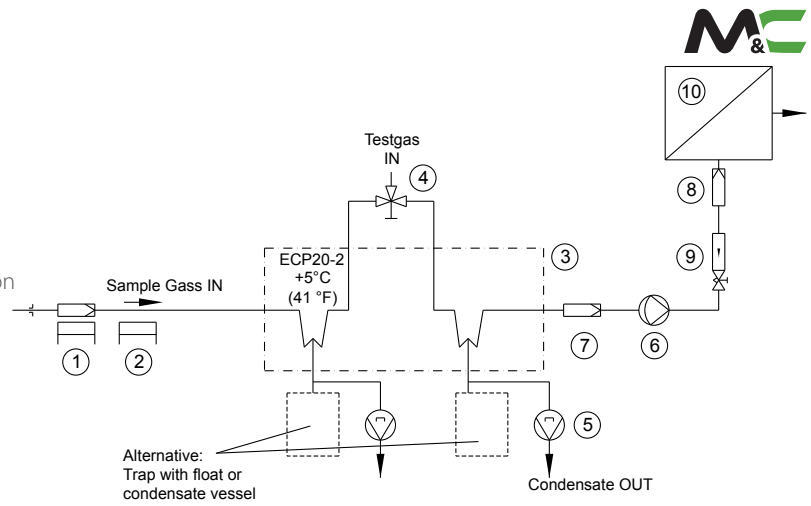
An alarm function is triggered at a temperature deviation of ±3 °C [±5.4 °F].

The ECP20-2 gas cooler is equipped with two EC jet stream heat exchangers for a max. flow rate of 500 NI/h. The first heat exchanger is used as an uncontrolled pre-cooling system and the second as a controlled main cooling system.

Due to the compact and lightweight design as well as a very fast operational readiness, it is particularly suitable for portable and stationary gas conditioning systems. The gas coolers operate self-monitoring and maintenance-free.

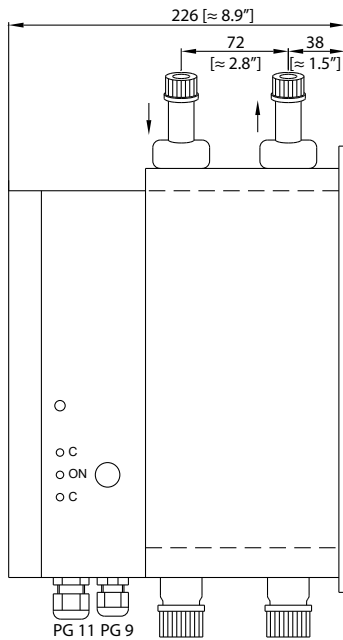
Example application for ECP20-2

- 1 Heated filter sample probe SP2000-H
- 2 Heated sample line 4M4/6
- 3 Cooler ECP20-2
- 4 3-way ball valves 3L/PV-1
- 5 Peristaltic pumps SR25.1
- 6 Diaphragm pump MP47
- 7 Fine filter FP-2T-D with liquid alarm LA1
- 8 Aerosol filter CLF-5/W optionally according to application
- 9 Flow meter FM10, 50-500 NI/h
- 10 Analyzer, e.g. PMA1000



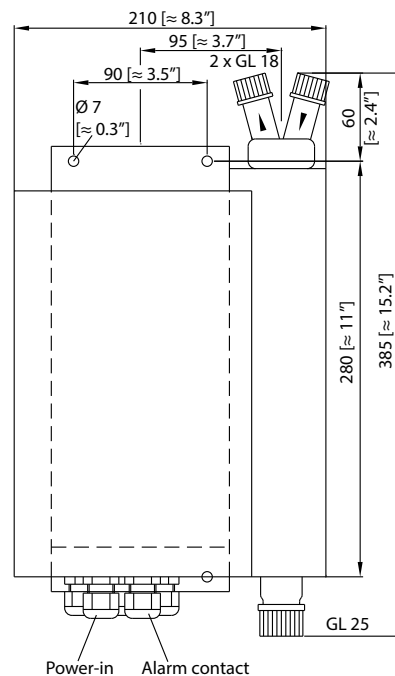
Dimensions ECP20-2

Side view

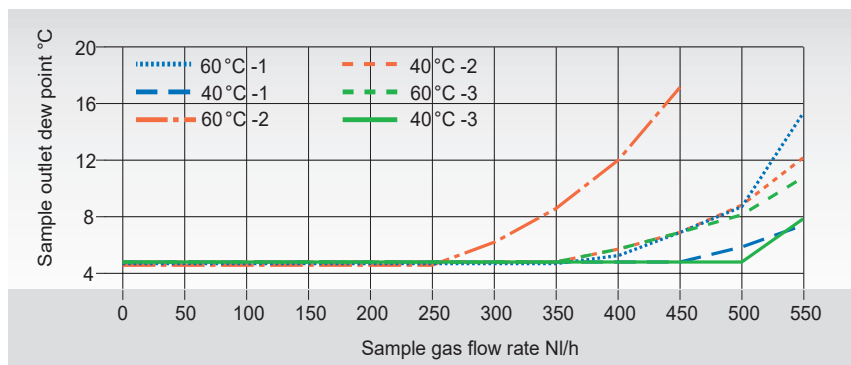
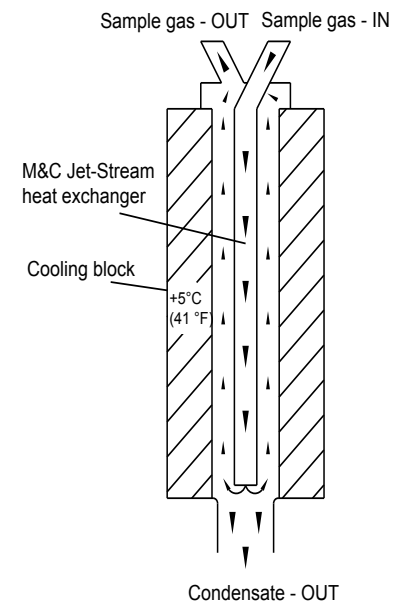


Dimensions in mm [Inches]

Front view



Functioning diagram of M&C heat exchanger



Sample outlet dew point difference

for the gas cooler ECP20-2 with heat exchangers out of:

- 1 Glass
- 2 PVDF
- 3 Stainless steel 316Ti

depending on gas flow rate, and depending on a sample inlet dew point of 40 °C [104 °F] or 60 °C [140 °F], at 25 °C [77 °F] ambient temperature.

Gas Cooler Series ECP*		ECP20-2	
Part No. Gas Cooler ECP20-2	01K8100	01K8140	01K8120
Material of heat exchanger	Duran glass®	PVDF	SS 316Ti
Gas pressure max.-bar abs. ²⁾ with GL adapter	2/3 ²⁾	3	10**
Sample gas connection	For ø 6 mm o.d. tube G 1/4" female		
Condensate connection	For ø 12 mm o.d. tube G 3/8" female		
ΔP at 500 NI/h flow rate	5 mbar		
Stagnant space per heat exchanger	Approximately 70 ml		
Gas stream/gas flow rate*	1 x max. 500 NI/h		
Ambient temperature*	+5 to +45 °C [41 to 113 °F]		
Storage temperature	-20 to +60 °C [-4 to 140 °F]		
Sample outlet dew point	Range of adjustment: +2 to +15 °C [35.6 to 59 °F], factory setting: +5 [41 °F]		
Dew point stability	At constant conditions < ±0.1 °C [< ±0.18 °F]		
Sample inlet temperature*	Max. 180 °C [356 °F]		
Sample inlet dew point*	Max. 80 °C [176 °F]		
Total cooling capacity at +25 °C [77 °F] ambient	80 kJ/h		
Main power connection/power consumption	230 V/50 Hz or 115 V/60 Hz switchable, 250 VA		
Ready for operating	< 20 min.		
Electrical connection	Terminals 2.5 mm ² , 2 x PG11 cable gland		
Status alarm 1 changeover contact, potential-free	Contact rating 250 V, 2 A, 500 VA, 50 W alarm point: Δ ±3 °C [±5.4 °F] to T _{SET}		
Case protection/electrical standard	IP54 EN 60529/EN 61010		
Method of mounting/case color	Wall-mounting/case color black		
Dimensions (W x H x D)	210 x 385 x 226 mm [≈ 8.3" x 15.2" x 8.9"]		
Weight	12.5 kg [≈ 27.6 lbs]		

* Maximum values in technical data must be rated in consideration of total cooling capacity at 25 °C [77 °F] ambient temperature and an outlet dew point of 5 °C [41 °F].

** Other versions on request.

²⁾ GL adapter and tube fittings for the connection of different tube diameters at the heat exchanger see data sheets "Fittings for GL Glass Connections" and "Flexible and rigid tube fittings, plugs and connectors with barbed fitting".

Please note: NI/h and NI/min refer to the German standard DIN 1343 and are based on these standard conditions: 0 °C [32 °F], 1013 mbar.

Duran® is a brand name for borosilicate glass produced by the German company Duran Group GmbH.